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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LIN WANG, PETE MILLER,
JEFF UNDERWOOD, TONYA ARMSTRONG,
MICHAEL KRAMER, SUSAN FREERS,
ROGER MCPHERSON, E. DANIELD HUBBARD
and TERRY ANDREN

Appeal 2008-4344
Application 09/863,928
Technology Center 1700

Decided:[1] February 27, 2009

Before CAROL A. SPIEGEL, CATHERINE Q. TIMM, and ROMULO H. DELMENDO, *Administrative Patent Judges*.

TIMM, *Administrative Patent Judge*.

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

DECISION ON APPEAL

I. STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1-7 and 33-43. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

The invention relates to a process of preparing an extruded starch product and a process of preparing a coated food product. Claims 1 and 33 are illustrative:

1. A process for preparing a cold-water soluble extruded starch product that has a solubility greater than 90% in water at 25° C that is film-forming in aqueous solution and that is gelatinized to a gelatinization level, said gelatinization level being at least 95%, the process comprising:

providing a hydroxyalkyl starch, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 6 carbon atoms, said starch being a granular starch having a particle size distribution such that at least 90% by weight of the starch particles pass through a 180 micron screen; and

extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said barrel having at least first and second zones, said first zone being upstream from said second zone, the conditions in said first zone being insufficient to gelatinize said starch to said gelatinization level and the conditions in said second zone being sufficient to gelatinize said starch to said gelatinization level, said starch being extruded in the presence of total moisture in said barrel no greater than about 25% by weight of said starch, said process including the step of controlling the rotational speed of said shaft to impart a specific mechanical energy to said starch sufficient to result in a soluble extruded starch product that is capable of extrusion through said die at said rotational speed.

33. A process for preparing a coated food product, comprising:

providing a food substrate;
providing a seasoning adherence solution; and

applying said seasoning adherence solution to said food product in a manner effective to cause seasoning in said solution to adhere to said food substrate; said seasoning adherence solution having been prepared by mixing water, an extruded starch product, and a seasoning to form said solution, said product having been formed by a process comprising:

providing a hydroxyalkyl starch, said starch being derivatized with a hydroxyalkyl substituent having from 2 to 5 carbon atoms, said starch being a granular starch having a particle size distribution such that at least 90% by weight of the starch particles pass through a 180 micron screen; and

extruding said starch in an extruder, said extruder having a barrel, a die, and at least one rotating shaft, said barrel having at least first and second zones, said first zone being upstream from said second zone, the conditions in said first zone being insufficient to gelatinize said starch to a gelatinization level of 95% and the conditions in said second zone being sufficient to gelatinize said starch to a gelatinization level of 95%, said starch being extruded in the presence of total moisture in said barrel no greater than about 25% by weight of said starch, said process including the step of controlling the rotational speed of said shaft to impart a specific mechanical energy to said starch sufficient to result in a soluble an extruded starch product that has a solubility greater than 90% in water at 25° C and that is capable of extrusion through said die at said rotational speed.

Appellants request review of the Examiner's rejections maintained under 35 U.S.C. § 103(a), namely:

(1) the rejection of claims 1-6 and 33-43 as unpatentable over Nakatsuka (US 4,076,846, issued Feb. 28, 1978 to Nakatsuka et al.) in view of Redding (US 5,455,342, issued Oct. 3, 1995 to Redding, Jr.), and further in view of Altieri (US 5,849,233, issued Dec. 15, 1998 to Altieri et al.); and

(2) the rejection of claim 7 over the above references and further in view of Protzman (US 3,137,592, issued Jun. 16, 1964 to Protzman et al.).

II. DISPOSTIVE ISSUE

The dispositive issue on appeal is: have Appellants shown that the Examiner reversibly erred in finding that Nakatsuka teaches or suggests a process of preparing a cold-water extruded starch product including providing a hydroxyalkyl starch and extruding said starch such that the conditions in a first zone of the extruder are insufficient to gelatinize said starch to a gelatinization level of at least 95% and the conditions in a second downstream zone are sufficient to gelatinize said starch to said gelatinization level?

We answer this question in the affirmative.

III. PRINCIPLES OF LAW

The examiner bears the initial burden of presenting a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). In order to establish a prima facie case of obviousness, the examiner must show that each and every limitation of the claim is described or suggested by the prior art or would have been obvious based on the knowledge of those of ordinary skill in the art. *In re Fine*, 837 F.2d 1071, 1074 (Fed. Cir. 1988). "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, (Fed. Cir. 1996) (*quoted with approval in KSR Int'l Co. v. Teleflex Inc.,* 127 S. Ct. 1727, 1741 (2007)).

In general, a limitation is inherent if it is the "natural result flowing from" the explicit disclosure of the prior art. *Schering Corp. v. Geneva Pharms., Inc.*, 339 F.3d 1373, 1379 (Fed. Cir. 2003). Where the examiner has reason to believe that a claimed property may, in fact, be an inherent characteristic of the prior art product, an examiner possesses the authority to require applicant to prove that the subject matter shown to be in the prior art does not in fact possess the property. *In re Best*, 562 F.2d 1252, 1254-55 (CCPA 1977). However, before applicant can be put to this burdensome task, the examiner must provide enough evidence or scientific reasoning to establish that the examiner's belief that the property is inherent is a reasonable belief. *Ex parte Levy*, 17 USPQ2d 1461, 1464-65 (BPAI 1990); *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (BPAI 1986).

IV. FINDINGS OF FACT

With regard to the extrusion step, the rejection: (1) reproduces the language of the extruding step verbatim from claim 1; (2) cites column 8, lines 9-17, 31-33, 49-53; column 13, lines 31-40; column 14, lines 5-12, 25-28 in support of a finding that Nakatsuka teaches this step; and (3) notes that "gelatinization occurs about 150C-175C." (Ans. 3.).

In responding to Appellants' arguments, the Examiner finds that Nakatsuka "clearly shows an extruder having varying temperature zones" citing column 13, lines 33-37, and "[a]lthough the specific gelatinization temperature for Nakatsuka's particular starch material is not known, it is known that gelatinization temperatures of starches such as are used in Nakatsuka range from 150C-175C and that gelatinization temperatures of starches in general range from about 70C-200C." The Examiner maintains

that Nakatsuka's extruder contains a first zone that does not allow gelatinization (30C-50C), wherein a second zone allows gelatinization (120C-200C) (Ans. 9).

Appellants contend that because the material processed in Nakatsuka is a complex of starch with protein, "it is uncertain whether this material even has a gelatinization temperature, or is capable of gelatinization." (Br. 6-7.). Appellants also contend the Examiner's determination that the zone conditions inherently meet the claimed gelatinization requirements lacks evidentiary support (Br. 7; Reply Br. 3).

Nakatsuka forms a water-soluble molding composition comprising starch material, an inorganic salt of a protein material, plasticizer, and lubricant (col. 3, ll. 64-68). The starch and protein-based materials may chemically react to some degree (col. 6, ll. 34-47).

Column 13, lines 33-37, discloses a step of molding that occurs after a step of milling a composition containing high-amylose cornstarch (starch component), sodium caseinate (protein component), and glycerol (plasticizer component) (Nakatsuka, col. 12, ll. 11-35). Milling occurs at a surface temperature of 120 °C (col. 12, ll. 20-21). The milled composition is introduced into the barrel of an injection molding machine with a hopper end at a temperature of 30-50 °C, a middle part at 120-160 °C, and a front part at 160-200 °C (col. 13, ll. 31-37).

Column 14, lines 5-12, disclose that an Example 2 composition is extrusion molded under the conditions of Example 1. This composition includes hydroxyethylated starch (Table 3, col. 13, ll. 56) and is obtained by the extrusion molding conditions of Example 1 (col. 14, ll. 5-7).

V. ANALYSIS

The Examiner offers no evidence in support of the finding that "gelatinization occurs about 150C-175C." (Ans. 3.) Nor does the Examiner offer any evidence in support of the finding that "it is known that gelatinization temperatures of starches such as are used in Nakatsuka range from 150C-175C and that gelatinization temperatures of starches in general range from about 70C-200C." (Ans. 9.) Moreover, it is unclear what starches the Examiner is referring to as "starches such as are used in Nakatsuka."

According to the Examiner, column 13, lines 33-37 of Nakatsuka describes an extruder having varying temperature zones, i.e., a first zone at 30-50 °C and a second zone at 120-200 °C such that the first zone does not allow gelatinization but the second zone allows gelatinization (Ans. 9). Column 13, lines 33-37, describes injection molding a composition including high-amylose corn starch and sodium caseinate protein (*see* col. 12, ll. 14-18). We agree with Appellants that the Examiner has offered no reasoning, nor pointed to any evidence of record, indicating that the starch-protein composition of Nakatsuka's Example 1 undergoes gelatinization.

In order to establish that gelatinization inherently occurs as claimed within the injection molding machine barrel of Nakatsuka's Example 1 process, the Examiner must provide sufficient evidence and technical reasoning to establish that gelatinization would not occur in the 30-50 °C range of the first zone of Nakatsuka's injection molding machine barrel, but would occur in a later 120-200° C zone(s). The Examiner has not provided the required evidence in support of a finding of inherency.

We further note that the extruding step of claim 1 is a step of extruding "said starch." Said starch must be read as referring to the hydroxyalkyl starch recited in the providing step of the claim; that is the only "starch" referred to in the claim. The Examiner has not established that the composition processed in Example 1, the Example containing the column 13 disclosure relied upon, contains hydroxyalkyl starch. There can be no gelatinization of hydroxyalkyl starch if that component is not contained in the composition.

The composition processed in Example 2 contains hydroxyalkyl starch, but the Example 2 composition is processed according to the extrusion molding process disclosed at column 12, lines 39-59 of Nakatsuka, not the injection molding process of column 13, lines 31-37. Nakatsuka only discloses one temperature zone for the barrel of that extrusion molding apparatus (Nakatsuka, col. 12, ll. 43-44). The Examiner has not established that the extrusion barrel used to mold the Example 2 composition has different barrel conditions such that the gelatinization level is not reached in the first zone, but is reached in the second zone as claimed.

Moreover, in both Examples 1 and 2, the composition is milled at 120 °C before molding (Nakatsuka, col. 12, ll. 20-35). Assuming the Examiner is correct that "gelatinization temperatures of starches in general range from about 70C to 200C" (Ans. 9), it is possible that gelatinization may occur in the milling step. It is not clear whether the Examiner considered the effects of the milling step in the determination of inherency.

The rejection of claim 33 fails for the same reason as the rejection of claim 1.

Furthermore, claim 33 further requires mixing the extruded starch product with water and seasoning to form a seasoning adherence solution and further requires a step of applying the seasoning adherence solution to cause seasoning in the solution to adhere to a food substrate.

The Examiner relies upon the disclosures in column 11 of Nakatsuka as teaching what is required by claim 33 (Ans. 5 and 9-10).

According to Nakatsuka at column 11, one can use the extruded film to form packages containing dry granulates or powders such as seasonings (col. 11, ll. 6-14). The packages can be introduced into cold or hot water without being unwrapped (col. 11, ll. 14-18). The film disintegrates and releases the seasonings into the water (col. 11, ll. 24-26). The film can also be used to wrap baking additives, and can be integrated to the baked product (col. 11, ll. 32-36 and 43-47).

This portion of Nakatsuka, as pointed out by Appellants, does not disclose forming a solution from the shaped article, incorporating seasoning into the solution, and coating a food substrate with the seasoning solution as claimed (Br. 10). The Examiner has not explained how the packaging and wrapping disclosures of Nakatsuka provide a suggestion for doing what is required by claim 33.

Appellants have established that the Examiner reversibly erred in rejecting claim 33 for this additional reason.

Redding and Altieri are relied upon for other limitations of the claims. These references as relied upon by the Examiner do not remedy the above discussed deficiencies in the rejection.

With respect to claim 7, the Examiner relied upon Nakatsuka as discussed above, and Protzman, as applied by the Examiner, does not remedy the deficiencies of the rejection.

VI. CONCLUSION

We do not sustain the rejection of claims 1-6 and 33-43 under 35 U.S.C. § 103(a) over Nakatsuka, Redding and Altieri. Nor do we sustain the rejection of claim 7 over those references further in view of Protzman.

VII. DECISION

The decision of the Examiner is reversed.

REVERSED

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